

MIL-C-13251C(WC)  
1 February 1972  
SUPERSEDING  
MIL-C-13251B(WC)  
20 June 1968  
with Amendment 1  
29 April 1970

## MILITARY SPECIFICATION

### CANNON, 8 INCH HOWITZER: M2A2

#### 1. SCOPE

1.1 This specification covers one type of howitzer cannon.

#### 2. APPLICABLE DOCUMENTS

2.1 The following documents of the issue in effect on the date of invitation for bids or request for proposal form a part of this specification to the extent specified herein.

#### SPECIFICATIONS

##### Military

- MIL-C-13931 - Cannons, General Specification for
- MIL-I-45607 - Inspection Equipment, Acquisition, Maintenance and Disposition of

#### STANDARDS

##### Military

- MIL-STD-109 - Quality Assurance Terms and Definitions

#### PUBLICATIONS

##### U. S. Army Weapons Command

- EPL 8767225 - Engineering Parts List for Cannon, 8 Inch Howitzer: M2A2
- DL 8767225 - Index of Inspection Equipment Lists, Cannon, 8 Inch Howitzer: M2A2
- DL 8767541 - List of Inspection Equipment for Breech Mechanism for Cannon, 8 Inch Howitzer: M2A2
- LSQAP 8767225 - List of Supplementary Quality Assurance Provisions for Cannon, 8 Inch Howitzer: M2A2
- P8767225 - Packaging Data Sheet for Cannon, 8 Inch Howitzer: M2A2

(Copies of specifications, standards, drawings and publications required by suppliers in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

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### 3. REQUIREMENTS

3.1 First article. When specified in the contract, the contractor shall submit a first article sample. The definition and inspection of the first article sample shall be as specified in 4.4. Unless otherwise specified (see 6.1.1), the first article sample shall be included in the pilot pack (see 5.1).

3.2 General requirements. The cannons and parts thereof shall conform to the drawings listed in Engineering Parts List EPL 8767225, the requirements of this specification, and MIL-C-13931.

3.3 Functioning. All parts shall function smoothly without interference, erratic movement or malfunction.

3.3.1 Breech mechanism. When the breech is open, a pull on the operating lever to the left, assisted by the counterbalance after the hinge pin arm passes dead center, shall swing the breechblock into the breech ring. This action allows the roller on the breechblock to strike the cam and rotate the breechblock clockwise to engage the sectored threads. An upward push on the operating-handle shall complete the rotation of the breechblock and lock the breech. The operating-handle shall latch in the closed position. To open the breech a rearward pull on the operating lever, after being unlatched, shall rotate the breechblock counterclockwise to disengage the sectored threads. A pull on the lever to the right, assisted by the counterbalance after the hinge-pin passes dead center, shall swing the breechblock out of the breech ring. The counterbalance shall retain the breech mechanism in the open position.

3.3.2 Block assembly. When the breechblock is moved to close the breech, the lowered block assembly shall be automatically cammed from the extract position to the load position, and the extractor shall be cammed forward against the rear of the spindle. The block assembly shall be capable of moving to the closed position only when the breechblock is closed. In this position the block assembly shall also be capable of being moved manually into the load and extract position. When the breechblock is moved to the open position, the block assembly shall slide in the slot in the housing assembly into the extract position. As the extract position is reached, the extractor shall forcibly eject the primer out of the spindle chamber.

3.3.3 Primer headspace. Primer headspace, the distance between the front face of the block assembly and the rear face of the obturator spindle, shall be not less than 0.052 inch nor more than 0.056 inch.

3.3.4 Firing pin protrusion and retraction. The firing pin protrusion measured from the front face of the block shall be not less than 0.114 inch and not more than 0.118 inch in the fired position. Firing pin retraction behind the front face of the block shall be not less than 0.012 inch.

### 3.4 Performance.

3.4.1 High pressure resistance. The cannons and repair tubes shall be capable of withstanding  $113 \pm 4$  percent of the 39,600 pounds per square inch upper pressure limit at 70° F when tested as specified in 4.5.5.

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3.4.2 Material soundness. After testing, all parts shall be free from cracks and fractures and shall comply with any soundness requirements specified on the applicable drawings.

3.4.3 Bore enlargement. Bore diameters measured across lands, after firing no more than 8 rounds, shall not exceed the basic (minimum) diameter specified on the applicable drawing by more than the amounts shown in Table I.

Table I Allowable bore enlargement

<u>Distance forward of commencement of rifling</u>	<u>0.10 inch</u>	<u>1 inch</u>	<u>1 cal</u>	<u>2 cals to muzzle</u>
Amount (in inches)	0.008	0.008	0.006	0.004

NOTE: Interpolate to determine the allowable enlargement between the distances listed.

3.5 Workmanship. Workmanship shall be in accordance with the requirements of MIL-C-13931.

#### 4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for inspection. Unless otherwise specified in the contract or purchase order, the supplier is responsible for the performance of all inspection requirements as specified herein. Except as otherwise specified in the contract or order, the supplier may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The Government reserves the right to perform any of the inspections set forth in the specification where such inspections are deemed necessary to assure that supplies and services conform to prescribed requirements.

4.2 Quality assurance terms and definitions. Quality assurance terms and definitions used in this specification are in accordance with MIL-STD-109.

4.3 Classification of inspection. The inspection requirements specified herein are classified as follows:

- a. First article inspection (see 4.4)
- b. Quality conformance inspection (see 4.5)

#### 4.4 First article.

4.4.1 First article sample. A first article sample shall be submitted by the contractor (in accordance with the contract requirements) for examination by or for the Government and tests by or for the Government (see 6.1.1). The sample shall be representative of the production process to be used during quantity production.

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4.4.2 First article inspection. The first article sample shall be subjected to a first article initial production test in accordance with all quality conformance inspections and all examinations and tests described in this specification to assure conformance with the requirements of this specification.

a. Failure of the first article to meet the requirements as evidenced by the results of the examinations and tests shall be cause for rejection (see 6.1.1). The contractor shall determine the cause of failure and shall take corrective action in current and subsequent production. Resubmission and retest shall be at the option of the Government (see 6.1.1).

b. Disposition of an acceptable first article sample shall be in accordance with the provisions of the contract (see 6.1.1).

#### 4.5 Quality conformance inspection.

4.5.1 Inspection provisions. Cannons shall be inspected for conformance to requirements of the provisions of this specification, to MIL-C-13931, SQAPS listed in Master LSQAP 8767225, and SQAP-APPENDIX-WVT.

4.5.1.1 Final examination. Final examination of each cannon shall be completed after testing and prior to preservation and packaging to determine compliance with this specification, MIL-C-13931, and as specified in the contract.

4.5.1.2 Inspection approval stamp. The application of the inspection approval stamp shall be as specified in MIL-C-13931.

4.5.2 Inspection equipment. Data lists containing drawing numbers of Government-designed inspection equipment used in the inspection of parts, sub-assemblies, and assemblies are listed in DL 8767225.

4.5.2.1 Acquisition, maintenance, and disposition. Unless otherwise specified (see 6.1.1), responsibility for acquisition, maintenance, and disposition of acceptance inspection and test equipment prescribed on the List of Inspection Equipment DL 8767225, and for all other inspection equipment required to perform inspection prescribed by applicable specifications, shall be in accordance with MIL-I-45607.

4.5.2.2 Accuracy of standard measuring equipment. When commercial and modified commercial inspection and test equipment is used, it shall be capable of repetitive measurements to an accuracy of 10 percent of the total tolerance of the characteristic being inspected.

#### 4.5.3 Examinations.

4.5.3.1 Firing pin protrusion. Firing pin protrusion and retraction shall be gaged on each cannon with the applicable gages referenced on List of Inspection Equipment, DL 8767541, or with approved equivalent gages.

4.5.3.2 Headspace. Headspace shall be gaged on each cannon with the applicable gage referenced on List of Inspection Equipment, DL 8767541, or with an approved equivalent gage.

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4.5.3.3 Workmanship. Workmanship shall be examined visually in accordance with MIL-C-13931.

#### 4.5.4 Tests.

4.5.4.1 Functioning tests. Functioning tests shall be conducted in accordance with MIL-C-13931 and as specified herein. A minimum of two complete cycles of operation shall be performed on each cannon.

4.5.4.1.1 Breech mechanism. Each breech mechanism shall be operated manually to determine smoothness of operation. Action of the operating handle shall be observed to insure that the handle will latch in the closed position after each complete cycle of operation. Any evidence of interference, erratic movement, or malfunction of any part shall be cause for rejection.

4.5.4.1.2 Block assembly. Each block assembly shall be operated manually to determine whether the requirements are met. Any deviation from the requirements of 3.3.2 shall be cause for rejection.

4.5.5 Performance tests. Cannons and repair tubes shall be subject to acceptance testing by a Government testing activity to assure compliance with 3.4. Acceptance testing shall be in accordance with procedures specified by the Quality Assurance element of the procuring activity.

4.5.5.1 Material soundness. After final acceptance testing, the breechblock, breech ring, the bushing, the obturator spindle assembly, the firing lock assembly, the carrier and the outer surfaces of the tube shall be magnetic-particle tested in accordance with the applicable drawings and specifications. The inner surfaces of the tube shall be examined by means of a borescope. Material not conforming to the requirements of 3.4.2 or to applicable drawings and specifications shall be rejected.

4.5.5.2 Bore enlargement. After firing no more than 8 rounds, the bore diameter across lands shall be measured with an air gage, a star gage, or other approved equivalent gage. Enlargement exceeding the limits specified in Table I shall be cause for rejection.

#### 4.6 Inspection of preparation for delivery.

4.6.1 Examination. The classification of defects and the AQLs for examination of the packaging, packing, and marking are as follows:

<u>Category</u>	<u>Defect</u>	<u>AQL</u>	<u>Inspection method</u>
<u>Major</u>			
101	Illegible or incorrect marking	1.0	Visual
102	Improper level of packaging and packing (see procurement documents)	1.0	Visual
103	Inadequate cleaning and drying	1.5	Visual
104	Improper preservative application	1.5	Visual
105	Missing or improper barrier material	1.5	Visual

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<u>Category</u>	<u>Defect</u>	<u>AQL</u>	<u>Inspection method</u>
<u>Major</u> (continued)			
106	Improper or inadequate blocking and bracing	1.5	Visual/Manual
107	Improper closure and strapping of container	1.5	Visual/Manual
<u>Minor</u>			
201	Workmanship	4.0	Visual

## 5. PREPARATION FOR DELIVERY

5.1 Pilot pack. On each contract, a pilot pack shall be forwarded in accordance with 3.1. Pilot packs for the cannon shall be packaged to the level of packaging specified in the contract and packed level C in accordance with the requirements of Packaging Data Sheet P8767225.

5.2 Preservation, packing, and marking. The cannon shall be unit packaged, packed, and marked in accordance with the requirements of Packaging Data Sheet P8767225 for the level of protection specified in the contract (see 6.1.1).

5.3 Repair parts. Repair parts shall be unit packaged, packed, and marked in accordance with the requirements of the applicable packaging data sheet (see 6.1.1).

## 6. NOTES

6.1 Ordering data. Procurement documents should specify the following:

### 6.1.1 Procurement requirements.

a. Title, number, and date of this specification

b. Requirements for submission and shipping instructions for first article (see 3.1 and 4.4) and pilot pack, if different (see 3.1 and 5.1)

(1) The contract should designate the examinations and tests to be performed by the contractor and the examinations and tests to be performed by the Government.

(2) The contract should specify the sample size (i.e., the number of units) of the first article sample.

(3) The contract should designate the inspection and test data that is required to be furnished the Government when the contractor is required to perform either or both examinations and tests.

(4) The contract should designate at whose expense a retest may be performed.

(5) The contract should specify that the acceptable first article sample shall be delivered in accordance with the terms of the contract, or

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(6) Any additional or extended examinations and tests beyond the scope of this specification should be specified and identified as a separate item of the contract.

- c. Serial numbers for the cannons and the repair tubes
- d. List of inspection equipment, responsibility for acquisition, maintenance, and disposition thereof, if other than as specified (see 4.5.2.1)
- e. Extent of contractor's responsibility for Government-furnished equipment
- f. Selection of applicable levels of preservation, packaging, and packing (see 5.2)
- g. Packaging instructions for repair parts (see 5.3)
- h. Applicable acceptance test procedures (see 4.5.6)

6.1.2 Contract data requirements. Monthly reports of the results of final examination and performance testing shall be as specified for delivery on DD Form 1423 in the contract.

6.2 When warranted, the contract should specify the application of MIL-Q-9858 or MIL-I-45208, as appropriate, on the Management Control Systems Summary List, DD Form 1660.

6.3 Unless otherwise specified (see 4.5.2), the contract should specify the application of MIL-I-45607 and MIL-C-45662 on the Management Control Systems Summary List, DD Form 1660.

Custodian:  
Army--WC

Preparing activity:  
Army--WC

Project No. 1030-A003

To detach this form, cut along this line.

SPECIFICATION ANALYSIS SHEET		Form Approved Budget Bureau No. 22-R255
<b>INSTRUCTIONS:</b> This sheet is to be filled out by personnel, either Government or contractor, involved in the use of the specification in procurement of products for ultimate use by the Department of Defense. This sheet is provided for obtaining information on the use of this specification which will insure that suitable products can be procured with a minimum amount of delay and at the least cost. Comments and the return of this form will be appreciated. Fold on lines on reverse side, staple in corner, and send to preparing activity. Comments and suggestions submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or serve to amend contractual requirements.		
SPECIFICATION		
ORGANIZATION		
CITY AND STATE	CONTRACT NUMBER	
MATERIAL PROCURED UNDER A <input type="checkbox"/> DIRECT GOVERNMENT CONTRACT <input type="checkbox"/> SUBCONTRACT		
1. HAS ANY PART OF THE SPECIFICATION CREATED PROBLEMS OR REQUIRED INTERPRETATION IN PROCUREMENT USE? A. GIVE PARAGRAPH NUMBER AND WORDING.		
B. RECOMMENDATIONS FOR CORRECTING THE DEFICIENCIES		
2. COMMENTS ON ANY SPECIFICATION REQUIREMENT CONSIDERED TOO RIGID		
3. IS THE SPECIFICATION RESTRICTIVE? <input type="checkbox"/> YES <input type="checkbox"/> NO (If "yes", in what way?)		
4. REMARKS (Attach any pertinent data which may be of use in improving this specification. If there are additional papers, attach to form and place both in an envelope addressed to preparing activity)		
SUBMITTED BY (Printed or typed name and activity - Optional)		DATE

DD FORM 1426  
1 JAN 66

REPLACES EDITION OF 1 OCT 64 WHICH MAY BE USED.